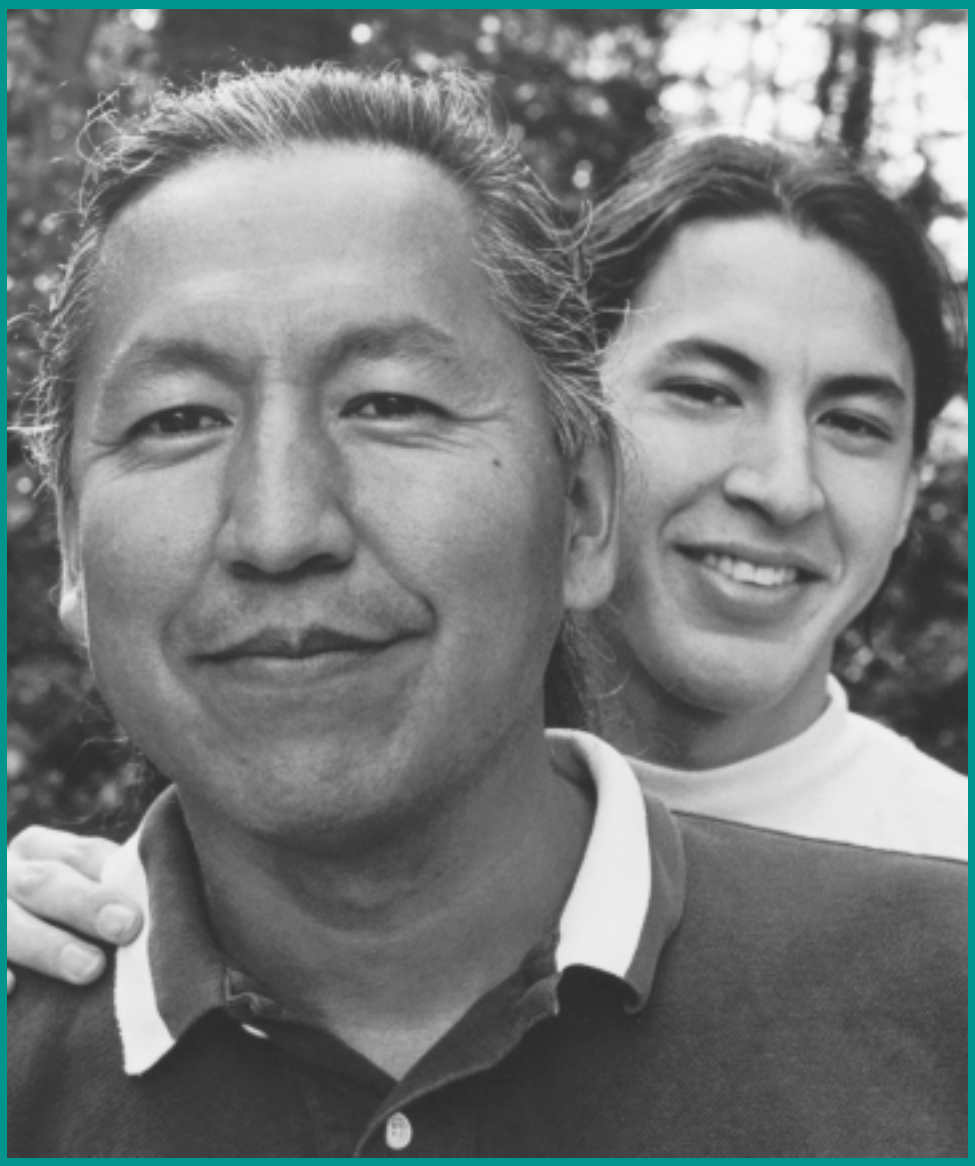
Diabetes



For more information about CDC's diabetes program,
visit http://www.cdc.gov/diabetes/index.htm

Michigan

Implementing an Outreach Network and Control Program to Prevent or Delay the Onset of Diabetes

Public Health Problem

In 2000, the estimated number of adults in Michigan diagnosed with diabetes was 491,000, or 6.7% of Michigan's adult population. In addition, 574,800 Michigan adults aged 40–74 have prediabetes or impaired glucose tolerance (IGT). In 2000, diabetes was the sixth leading cause of death for Michigan residents. Diabetes-related medical care in Michigan exceeded $2.9 billion, with 60% of these costs attributed to hospitalization.

Evidence That Prevention Works

Multiple national and international studies have established the effectiveness of diabetes care improvement and patient self-management in reducing and delaying the onset of blindness, the need for foot or lower-extremity amputations, kidney disease, and many other diabetes outcomes. Recent diabetes prevention clinical trials have clearly demonstrated that among those with prediabetes, diabetes onset can be prevented or significantly delayed through modest improvements in nutrition, weight control, and exercise levels.

Program Example

The Michigan Diabetes Outreach Network (MDON) is composed of six regional Diabetes Outreach Networks. As part of this program, the networks have a Diabetes Care Improvement Project and work with over 150 agencies in the state. The agencies include physician offices, community health centers, home care agencies, state certified diabetes self-management education programs, and a range of other health care providers. The networks collaborate with the agencies to ensure that people with diabetes receive care according to current American Diabetes Association (ADA) clinical practice recommendations. Data are collected during the initial patient visit and follow-up appointments to determine how to improve care. The data through 2001 for A1C monitoring, foot exams, and microalbuminuria (kidney disease) assessments (all done at least once annually) show a significant improvement in the number of people with diabetes who have these tests done. In 2001, A1C tests increased from 14% in 1996 to 78%, and foot exams increased from 58% in 1996 to 77%. Microalbuminuria tests were added to the data system in 2000 and increased from 22% to 28% in the number of people tested between 2000 and 2001. MDON clients also reported significantly improved physical activity levels and nutritional planning.

Implications

Results from MDON demonstrate that working with health care agencies and providers through a statewide Diabetes Care Improvement Project can improve outcomes for people with diabetes. This program demonstrates that a regional network can play an effective role in helping to assure that all care provided to clients is based on ADA clinical practice recommendations.

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Minnesota

Establishing a Community-Based Diabetes Coalition to Reach Rural Populations Through Public-Private Collaboration

Public Health Problem

An estimated 276,000 Minnesotans have diabetes; however, many people with diabetes do not receive recommended preventive care services and self-management education to help prevent diabetes complications.

Evidence That Prevention Works

Studies demonstrate that intensive preventive care, controlling blood glucose levels, improved nutrition, and increased drug therapy compliance significantly reduce adverse diabetes outcomes such as premature death, blindness, kidney failure, or lower-extremity amputations.

Program Example

Using CDC funding, the Minnesota Diabetes Prevention and Control Program partnered with two community-based coalitions in rural counties to develop and test a public-private collaboration called the Diabetes Community Collaboration Program (DCCP). The DCCP brought together potentially competing groups of diabetes stakeholders, including local public health agencies, private health care organizations, and community groups, to identify and address common goals for diabetes care and education. The coalitions planned, implemented, and evaluated a broad range of activities in their communities for people with diabetes, the general public, health care systems, and health care providers. One coalition developed a community diabetes registry that is used for monitoring diabetes care, providing ongoing diabetes education, and reminding registrants to obtain needed health care services. Both coalitions have expanded educational opportunities for people with diabetes by providing ongoing diabetes education through local media, community events, formal education, and support groups. Each coalition has created opportunities for health care providers to receive updates about the standards of diabetes care through professional education workshops. The coalitions' efforts resulted in diabetes care improvements in the local clinics between 1995 and 2000. Clinic patient chart audit data showed that A1C testing increased by 82% in Rice County and by 300% in northern Koochiching County. Kidney function testing rose by 80% and 400%, respectively; median A1C levels decreased by 9.4% and 17%, respectively. Lipid levels also shifted from higher to lower risk categories.

Implications

The DCCP diabetes coalitions created community networks, improved diabetes care, increased education among diabetes patients to empower them to advocate for their own care, and improved diabetes education among health care professionals and providers. This program is an example of how the Diabetes Today community model can be implemented within a local health care system to increase coordination, collaboration, and resource sharing to reduce the burden of diabetes.

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Missouri

Establishing a Diabetes Collaborative to Implement the Chronic Care Model and Monitor Available Health Services

Public Health Problem

Diabetes-related care for high-risk, medically underserved, and racially/ethnically diverse populations must be improved to decrease health disparities and prevent serious diabetes complications. In 2001, an estimated 6.5% of adult Missourians (about 276,453 persons) reported physician-diagnosed diabetes.

Evidence That Prevention Works

Studies have shown that by providing better access to preventive care, diabetes-related outcomes such as blindness, kidney failure, and lower-extremity amputation can be prevented or delayed.

Program Example

The Missouri Diabetes Prevention and Control Program (MDPCP) collaborated with six federally qualified health centers (FQHCs) and one National Health Service site that participated in the Bureau of Primary Health Care's National Health Disparities Diabetes Collaborative. From June 2000 to June 2002, each center implemented the Chronic Care Model in one or more clinics, forming teams of diabetes-related health care specialists. Each center established an initial "population of focus," a registry of patients with diabetes. Additional provider or site registries were added as the project period progressed. The Diabetes Electronic Measurement System (DEMS) was used to monitor indicators of health status, health behaviors, and services received. The MDPCP's second-year evaluation of aggregate data from the combined diabetes registries of the seven Missouri health centers participating in the Diabetes Collaborative found that the number of patients enrolled in the Diabetes Collaborative increased from 1,107 to 3,431, or by 210%. In the aggregate registries, there were significant improvements in the prevalence of 10 key measures: (1) average A1C value (-3%), (2) retinal eye exam (+197%), (3) dental exam or referral (+325%), (4) foot exam (+18%), (5) influenza vaccination or referral (+149%), (6) choleterol testing (+37%), (7) body mass index calculation (+15%), (8) diabetes education (+78%), (9) self-management goal setting (+24%), and (10) nutrition counseling (+92%).

Implications

In Missouri, the health centers' participation in the Midwest Cluster of the National Diabetes Collaborative made and sustained substantial improvements in the quality of care for their patients with diabetes. Future efforts should focus on maintaining and improving these gains while extending their benefits to other Missourians with diabetes. This program demonstrates the importance of team delivery of comprehensive health care and increasing patients' participation in the management of their diabetes.

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Montana

Forging Partnerships to Reach Disparate Populations: Indian Health Service, Urban, and Tribal Diabetes Programs

Public Health Problem

The prevalence of diagnosed diabetes is 12% among adult Montana American Indians in Montana, which is approximately two times higher than among non-Indian adults. Indian Health Service, urban, and tribal diabetes programs face many challenges in providing quality care to their diabetes patients as well as in implementing diabetes prevention activities because of the large number of American Indians with diagnosed diabetes and the geographic remoteness of the reservations in Montana.

Evidence That Prevention Works

Recent primary prevention studies have demonstrated that weight loss and regular physical activity can delay the onset of diabetes among people at high risk of developing the disease. Similarly, the results from secondary prevention trials indicate that intensive management of diabetes can prevent the development of serious diabetes-related complications.

Program Example

Beginning in 1997, the Montana Diabetes Prevention and Control Program (DPCP), the Billings Area Indian Health Service (IHS) diabetes program, the urban Indian program, and each of the tribal and IHS diabetes programs developed an effective collaborative partnership to identify and reduce the burden of diabetes among American Indians in Montana. Specifically, this partnership has addressed community-based health systems, health communications strategies, and surveillance, including establishing a surveillance system to monitor trends in diabetes prevalence and the quality of care among American Indian youth. Through this partnership, epidemiologic support was provided to assist diabetes coordinators in summarizing information from their ongoing school screening programs to assess diabetes risk among youth and assess trends in preventive services and clinical outcomes. A software system also was developed to support a community-based project between the University of Montana and the Salish and Kootenai tribes to improve physical activity and nutrition among American Indians at risk for diabetes.

Implications

These unique collaborative efforts combine the resources, expertise, and “people-power” of the tribal and IHS diabetes programs and the state DPCP to reduce the burden of diabetes in Montana. The surveillance, community-based health systems, and health communications strategies will enable the tribal and IHS diabetes programs to monitor trends in diabetes among their young people, evaluate the effectiveness of their diabetes prevention activities, and identify opportunities to improve care for their patients with diabetes.

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North Carolina

Establishing Self-Management Diabetes Education Programs to Reach Special Populations

Public Health Problem

Diabetes places a tremendous health burden on the citizens of North Carolina. An estimated 584,000 people have diabetes in North Carolina, and one third of these people probably do not know they have the disease. From 1995 to 2000, the prevalence of diagnosed diabetes in the adult population increased by 42% (from 4.5% to 6.4%); this percentage translates to about 389,000 people with diagnosed diabetes in North Carolina.

Evidence That Prevention Works

Research, such as the National Institutes of Health's Diabetes Control and Complications Trial, confirms that people with diabetes can drastically reduce their risk for serious complications by controlling their blood glucose levels and following recommended screening guidelines so complications can be detected early. Up to 90% of diabetes-related blindness and over 50% of diabetes-related lower-extremity amputations and kidney failures are preventable.

Program Example

A CDC-sponsored program, Project DIRECT (Diabetes Interventions Reaching and Educating Communities Together), focuses on the African American community in Southeast Raleigh. Project DIRECT offers a comprehensive approach to prevention and works to reduce the risk factors for diabetes (by promoting increased physical activity and improved dietary practices) and to increase overall awareness of diabetes and its risk factors and complications. Project DIRECT also works to increase the number of people at high risk who are screened for diabetes and to increase the number of people with diagnosed diabetes who receive regular diabetes care. In its first year, Project DIRECT increased the number of diabetes patients who received foot care counseling and foot exams from approximately 20% to 50%. Patient chart audits also have shown increased numbers of people with diabetes who monitor their blood glucose levels at home; participate in diabetes education; monitor their A1C levels; and get ophthalmology referrals, microalbuminuria (kidney disease) assessments, and vascular exams.

Implications

Project DIRECT demonstrates that significant changes in the preventive care practices of health care providers can lead to overall improvements in care and can reduce the devastating complications of diabetes. Diabetes self-management education can provide special populations, such as the African American community that was reached through Project DIRECT, with some of the necessary tools to manage their diabetes more effectively.

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Utah

Working With Health Care Providers to Implement Care Management Strategies to Ensure Appropriate Diabetes Testing

Public Health Problem

Utah residents with diabetes are not receiving health care services recommended by the American Diabetes Association (ADA), such as AlC tests and eye exams. Data collected from health plans in Utah showed that although 77% of the commercial health plan members with diabetes had received at least one A1C test in the preceding year, only 23% had levels below 7%, and only 42% had levels below 8%. In the Medicaid health plans, the percentages were 78% tested, 26% below 7%, and 44% below 8%.

Evidence That Prevention Works

Results from the Diabetes Control and Complications Trial and the United Kingdom Prospective Diabetes Study have shown that maintaining near normal blood glucose levels (at or below 7%) could significantly reduce diabetes complications. Other studies have shown that regular eye exams and tests for kidney function can prevent or delay diabetic eye disease and kidney failure.

Program Example

To help meet the recommended standards of care for people with diabetes, the CDC-funded Utah Diabetes Prevention and Control Program convened a group of nine health plans to develop, implement, and evaluate care management strategies. The health plans matched members with diabetes to their most likely primary care provider and determined whether the members had received the recommended screening tests by using HEDIS measurements. Members received a personal profile of their screening test history and information on the recommended tests and their frequency, their health plan's policy for reimbursement for each test, and an incentive for getting an eye exam (e.g., a 60-minute telephone calling card). After the program was implemented in March 2000, participating health plans collected HEDIS data on diabetes-related screening tests from 3,000 patient charts to evaluate the intervention. The results, although not exclusively attributed to the intervention, were significant. A1C testing for commercial and Medicaid plan members increased 12.5% to 86% and 1.5% to 79%, respectively. Commercial plans increased the percentage of patients with A1C levels below 7% to 33% (a 40% increase); the percentage below 8% increased to 53% (a 25% increase). For the Medicaid plans, there were also improvements in A1C levels among patients (by 19% for those below 7% and by 18% for those below 8%). The percentage of documented eye exams improved for both commercial (by 18% to a level of 47%) and Medicaid (by 5% to a level of 48%) plans.

Implications

This program demonstrates that testing to detect eye and kidney disease early and monitoring A1C levels can be increased substantially by direct health plan involvement. Preventing severe vision loss and halting the progression of kidney disease alone could significantly improve the quality of life of many people with diabetes and save millions of dollars in medical costs.

Contact Information

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Washington

Improving Diabetes Care in Community Health Centers Through a Statewide Collaborative

Public Health Problem

Of the 217,000 Washington residents who are diagnosed with diabetes, 20% to 48% of them have extremely high blood sugar measurements. In 1999, diabetes was associated with 56,485 hospitalizations in Washington at a cost of $671 million. Many of these hospitalizations could have been prevented through early detection and appropriate diabetes management, including blood sugar control.

Evidence That Prevention Works

Prevention of elevated blood sugar can dramatically prevent other health problems for people with diabetes and potentially reduce health care costs. A systematic and collaborative approach to shift the medical care delivery system to a chronic care focus can improve blood sugar levels and other diabetes indicators in patients who participate in primary care organizations.

Program Example

The Washington State Department of Health Diabetes Prevention and Control Program and Qualis Health (a Medicare Quality Improvement Organization) sponsored the Washington State Diabetes Collaboratives (WSDC) I and II.WSDC I and II are quality improvement projects for primary care practices to improve health outcomes for people with diabetes. Seventeen practice teams and 10 health plans participated in WSDC I, and 30 practice teams and 7 health plans participated in WSDC II. Teams established a registry to track their patients with diabetes and test and implement changes in their practice using the Chronic Care Model as a framework. The Washington State Diabetes Prevention and Control Program developed the Diabetes Electronic Management System (DEMS) and provided this tracking system and technical assistance to participating clinics free of charge. After a 13-month intensive phase, the Diabetes Prevention and Control Program and Qualis Health continue to provide services and encouragement to support the clinical practice teams continuing their work. Some of these services include maintaining an active E-mail list for team members to consult their peers, providing aggregate quarterly reporting to give teams a statewide benchmark, providing ongoing DEMS registry support, and training new staff. Among 981 patients, blood sugar levels decreased on average by approximately 10%, and the prevalence of patients who had extremely high blood sugar levels decreased from 24% to 17%.

Implications

The Washington State Diabetes Collaboratives are producing results and demonstrate that this state Diabetes Prevention and Control Program can play a critical role in improving diabetes care.

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Wisconsin

Establishing Statewide Guidelines and Promoting Provider Collaboration to Reduce the Burden of Diabetes

Public Health Problem

In 2000, an estimated 326,000 adults in Wisconsin had diabetes. This estimate includes both diagnosed and undiagnosed diabetes. In 2000, there were 78,790 diabetes-related hospitalizations in Wisconsin, costing more than $1.03 billion.

Evidence That Prevention Works

National and international studies have shown that improved diabetes care and patient self-management can delay blindness, lower-extremity amputations, kidney disease, and other adverse outcomes in people with diabetes. Recent diabetes prevention clinical trials clearly have demonstrated that, among those with prediabetes, the onset of diabetes can be prevented or delayed significantly through modest improvements in nutrition, weight control, and exercise levels.

Program Example

In 1998, the Wisconsin Diabetes Advisory Group (DAG) developed and published *Essential Diabetes Mellitus Care Guidelines* as a way of improving diabetes care through health care providers and health systems. Over 70% of Wisconsin's licensed health maintenance organizations (HMOs) adopted or adapted these guidelines. The Wisconsin Diabetes Prevention and Control Program, in partnership with the University of Wisconsin Department of Population Health Sciences, members of DAG, and state HMOs developed the Wisconsin Collaborative Diabetes Quality Improvement Project. Broadly, the Collaborative Project's strategic goals include evaluating the implementation of the *Essential Diabetes Mellitus Care Guidelines;* sharing resources, population-based strategies, and best practices among collaborators; and improving diabetes care through collaborative quality improvement initiatives. Aggregate data from the project's third-year evaluation show that the Wisconsin collaborators performed at a level that exceeded the National Committee on Quality Assurance (NCQA) regional and national averages on each of the six diabetes measures (A1C monitoring, A1C control, LDL-cholesterol screening, LDL-cholesterol control, eye exams, and kidney disease screening). Additionally, the majority of Wisconsin's HMOs currently participate in the project. The collaborators also initiated a statewide quality improvement intervention to increase eye exams and improve reporting of exam results and recommendations.

Implications

This program demonstrates the importance of promoting collaboration to share best practices and effective strategies that lead to quality interventions to improve diabetes prevention and control measures.

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